EVALUATION OF SINGLE STRAIN GAUGES AND DOUBLE STRAIN GAUGES

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ABSTRACT

This paper describe about the evaluation between single strain gauges and double strain gauges. Besides that, to compare the accuracy between 5mm types of strain gauges and 8mm of strain gauges. The accuracy between single strain gauges and double strain gauges also was compared .Its will cover the design of the measurement circuit. The first important component of this work is the measurement circuit. It is design based on Wheatstone Bridges and amplifier.2 types of strain gauges were selected, 5mm aluminum types and 8mm aluminum types .Micrometer transducer was used in this project.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The strain gauges has been used for many years. The majority of strain gauges are foil types, available in a wide choice of shapes and size to suit of variety of application[1].The strain gauges is connected into a Wheatstone bridges circuit with a combination of four active gauges, two gauges or commonly a single strain gauges. Strain gauges are conductors are very thin if made of around wire, about 1/1000 inch in diameter. Alternatively, strain gauges conductor maybe thin strips of metallic film deposited on a conducting substrate material called the carrier [2].Typical strain gauges resistance range 30 ohms to 30kohms (unstressed).This resistance may change only a fraction of a percent for the full force range of the gauges given the limitation imposed by the elastic limit of the gauges material and of the test specimen.

1.2 PROBLEM STATEMENT

Nowadays, strain is one of the popular sensor that used in many application. Therefore, choosing the best strain gauges is one important thing ,it is because to get the best result. Besides that, understand about the characteristics of strain gauges and how the strain gauges work is important.

There are many types of strain gauges, but each types has different accuracy and stability. So, for the best way to choose the strain gauges is test the strain gauge using micrometer transducer. But, before test the strain gauges, one important thing is to design the circuit, so that the strain gauges suit with circuit or not.